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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,960	03/03/2004	Dominic Alan Kemp	16737-US	5726

7590

10/03/2005

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EXAMINER

HARRIS, KATRINA B

ART UNIT	PAPER NUMBER
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3747

DATE MAILED: 10/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/791,960

Applicant(s)

KEMP ET AL.

Examiner

Katrina B. Harris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 03/03/04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

This is a first action on the merits of application serial no. 10/791,960 filed March 3, 2004.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moller et al. (6,532,912). Moller et al. discloses piston cooling spray jet and installation tool there for comprising: a piston cooling nozzle (4), the nozzle having a hollow main body portion adapted to be press fit into a through bore (5) of an engine cylinder block, a first end of the through bore located in a piston gallery and a second end of the

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through bore located in a main bearing journal, the through bore intersecting with an oil circuit in the cylinder block, a nozzle tube affixed thereto so that the nozzle tube is in fluid communication with a partially threaded interior passage in the hollow main body portion and with the oil circuit when the main body portion is mounted in the cylinder block, the main body portion of the nozzle further having an orientation feature:

An installation tool (14) comprising a main body portion adapted to mateably engage a surface of the main bearing journal, a cap screw extending through an aperture in the main body portion, and an orientation key affixed to the main body portion and partially surrounding the cap screw;

Wherein the nozzle is inserted into the through bore from a first side in the piston gallery and the installation tool is inserted in the through bore from a second side in the main bearing journal such that the main body portion of the installation tool mateably engages the surface of the main bearing journal while the cap screw and orientation key are received in the through bore (5); the cap screw is threaded into the interior passage of the main body portion of the nozzle and the orientation key of the installation tool mateably engages the orientation feature of the nozzle so that when the cap screw is tightened to a predetermined torque the nozzle is pulled into the through bore to a predetermined depth and at a predetermined orientation. (see column 2 lines 56-59)

Regarding claim 2, a cooling nozzle mounting arrangement comprising:
an internal combustion engine cylinder block having: at least one piston gallery wherein a piston cylinder is located, at least one main bearing journal, an oil circuit, and,

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a through bore provided in the cylinder block having a first end located in the piston gallery and a second end located in the main bearing journal, the through bore intersecting with the oil circuit, a cooling nozzle comprising:

a main body cartridge having a generally cylindrical portion with an interior passage located therein and an orientation feature extending from the cylindrical portion, the orientation feature being a semi-cylinder, the interior passage of the main body cartridge having threads at an end proximal to the orientation feature, the outside diameter of the cylindrical portion of the main body cartridge being selected to attain an appropriate press fit with the through bore; and, a nozzle tube having a first end and a second end affixed to the main body cartridge so that the tube is in communication with the interior passage thereof, an installation tool comprising:

a main body portion having an aperture therein and having upper surfaces having a radius that matches a radius of the main bearing journal, an orientation key mounted in the aperture of the main body portion, the orientation key having a cylindrical portion with an interior bore and a semi-cylindrical portion; and, a cap screw having a threaded end and a head end, the cap screw being inserted in the orientation key bore from a lower side of the main body portion such that the threaded end extends out from the semi-cylindrical portion of the orientation key and the head is seated against a surface on a lower side of the main body portion, the interior bore of the orientation key being sized so that the cap screw can turn freely when disposed in the bore;

wherein the main body cartridge of the nozzle is started in the through bore at the first end located in the piston gallery, the orientation key and cap screw are inserted in the

second end of the through bore in the main bearing journal, the radius of the upper surfaces of the main body portion of the tool are brought into mating engagement with the radius of the main bearing journal, the cap screw is started in the threads of the interior passage of the nozzle, as the cap screw is torqued the main body cartridge of the nozzle is drawn into a press fit with the through bore, the orientation key of the tool being rigidly affixed to the main body portion and the semi-cylindrical portion of the key is matingly opposed by the semi-cylindrical orientation feature of the nozzle, so that the nozzle cannot rotate in the bore as the cap screw is torqued, and the second end of the through bore is sealed against oil leaks from the oil circuit intersecting the through bore when a main bearing is mounted in the main bearing journal.

Regarding claim 3, wherein the nozzle tube has a serpentine profile. It would be obvious to one of ordinary skill in the art at the time of the invention to form a serpentine profile since it merely a change of shape, which requires minimum skill in the art.

Regarding claim 4, wherein the first end of the nozzle tube is adapted to provide a predetermined spray pattern.

Regarding claim 5, wherein first and second sides of the main body portion of the tool are parallel to first and second sides of the main bearing journal when the radiused upper surfaces of the main body portion is mated to the main bearing journal.

Regarding claim 6, wherein the precise orientation of both the orientation key of the tool and the orientation feature of the nozzle are pre-selected based upon the desired final orientation of the nozzle within the piston gallery.

Regarding claim 7, a cooling nozzle comprising:

a main body cartridge having a generally cylindrical portion with an interior passage located therein and an orientation feature extending from the cylindrical portion, the orientation feature being a semi-cylinder, the interior passage of the main body cartridge having threads at an end proximal to the orientation feature, the outside diameter of the cylindrical portion of the main body cartridge being selected to attain an appropriate press fit with the through bore; and, a nozzle tube having a first end and a second end affixed to the main body cartridge so that the tube is in communication with the interior passage thereof.

Regarding claim 8, wherein the nozzle tube has a serpentine profile.

Regarding claim 9, wherein the first end of the nozzle tube is adapted to provide a predetermined spray pattern.

Regarding claim 10, an installation tool comprising:

a main body portion having an aperture therein and having an upper surface having a radius that matches a radius of the main bearing journal, an orientation key mounted in the aperture of the main body portion, the orientation key having a cylindrical portion with an interior bore and a semi-cylindrical portion;

a cap screw having a threaded end and a head end, the cap screw being inserted in the orientation key bore from a lower side of the main body portion such that the threaded end extends out from the semi-cylindrical portion of the orientation key and the head is seated against a surface on a lower side of the main body portion, the interior bore of the orientation key being sized so that the cap

screw can turn freely when disposed in the bore.

Regarding claim 11, a method of mounting a piston cooling nozzle in an engine cylinder block comprising the steps of:

providing a through bore in the cylinder block between a piston gallery and a main bearing journal, the through bore intersecting an internal oil circuit of the cylinder block, inserting a cooling nozzle assembly having an orientation feature in the through bore from the piston gallery;

inserting an installation tool having an orientation key and a cap screw in the through bore from the main bearing journal using a radiused upper surface of the installation tool to mateably align the tool with the main bearing journal',

using the orientation feature of the cooling nozzle assembly and orientation key of the installation tool to establish a predetermined orientation of the nozzle within the piston gallery;

threading the cap screw of the installation tool into the cooling nozzle assembly, tightening the cap screw to a predetermined torque so as to draw the cooling nozzle into a press fit with the through bore at a predetermined depth, and, unthreading the cap screw from the nozzle assembly and withdrawing the installation tool from the through bore.

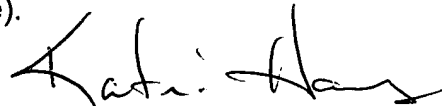
Regarding claim 12, comprising the further step of mounting a main bearing in the main bearing journal so as to seal the through bore at one end thereof.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katrina B. Harris whose telephone number is 571-272-4842. The examiner can normally be reached on 6:30 AM -3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Yuen can be reached on 571-272-4856. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Katrina B. Harris
Examiner
Art Unit 3747

KBH



MAHMOUD GIMIE
PRIMARY EXAMINER